

### REMARKS

Claims 1-13, 18-19, 33-35, and 37-40 remain in the referenced application. Claims 10-13, 18, and 19 have been allowed. Claims 14-17, 20-32, and 36 have been canceled. Claim 5 has been amended. The drawings have been objected to under 37 C.F.R. §1.83(a).

The Examiner has rejected claim 5 and 36 under 35 U.S.C. §112, second paragraph, on the basis the specification and drawings do not disclose a semi-oblong shaped housing. The Examiner has further objected to the drawings under 37 U.S.C. §1.83(a) on the basis the drawings do not disclose a semi-oblong shaped housing. Applicant respectfully contends “an oblong shaped cross-section” encompasses and thus discloses a “semi-oblong shaped housing.” Nevertheless, Applicant has canceled claim 36 and amended claim 5 to recite the cross-section is wider than tall to remove the recitation of a “semi-oblong shape.” Applicant accordingly, respectively submits that the 35 U.S.C. §112, 2<sup>nd</sup> paragraph, rejection of claim 5 has been overcome. Applicant further respectfully submits that no new drawings are required.

Claims 1 stands rejected under 35 U.S.C. §102(b) as being anticipated by Reynolds, et al., (U.S. Patent No: 3,441,176, hereinafter referred to as “Reynolds”). In rejecting claim 1, the Examiner asserts that, Reynolds discloses a carbonator comprising a carbonator housing having a reduced vertical profile defining an interior volume. Applicant has previously established that Reynolds discloses a carbonator (300) that includes a vessel (301) having a diameter and a length measurement (col. 12, lines 12-14). A diameter and a length measurement are clearly indicative of a “cylindrically shaped housing.” Applicant further respectfully submits that Reynolds clearly stands his cylindrically shaped housing on end, thereby directing his dominant dimension in the vertical direction, and creating an “imposing vertical profile.” Applicant’s invention is drawn to

a carbonator including a “reduced” or “compressed” vertical profile to minimize a vertical height of the carbonator in a cold plate, thereby reducing a required cold plate thickness.

While the Examiner has mentioned that the use of the word “reduced” is a relative term, Applicant respectfully asserts that the claims must be read in light of the specification, and Applicant’s specification clearly refers to a carbonator having a decreased height. One of ordinary skill in the art will readily recognize that a carbonator with a “reduced vertical profile” clearly refers to a carbonator that is short in the vertical direction. Clearly, a reduced vertical profile carbonator cannot be anticipated by a reference that directs a dominant dimension into the vertical direction, as does Reynolds. Accordingly, Applicant respectfully submits that claim 1 is patentable over Reynolds, and respectfully requests that the rejection of claim 1 under 35 U.S.C. §102(b) be withdrawn.

Claim 2 stands rejected under 35 U.S.C. §102 (b) by Reynolds. In rejecting claim 2, the Examiner asserts that Reynolds discloses a carbonator housing, wherein a “vertical dimension of a cross-section of the housing is one of the shorter dimensions of the housing.” Applicant has amended claim 2 to recite, “wherein a vertical dimension of the cross-section of the housing is the shorter dimension of the cross-section.” The Examiner has further cited, “the reference clearly discloses a carbonator including an interior volume, wherein a cross-sectional plane therethrough on an angle of, for example 5 degrees from the horizontal would provide a cross-sectional slice that is oblong or oval shape.” Applicant respectfully disagrees with the Examiner, and respectfully asserts that the term “cross-section” is defined as a, “cutting or piece of something cut off at right angles to an axis (Webster’s Seventh New Collegiate Dictionary). As such, Reynolds’ upright cylinder clearly has a cross-section of circle. Applicant further respectfully asserts that Reynolds clearly discloses an upright cylinder with half a sphere

disposed on top of the upright cylinder, and accordingly, a cross-section of Reynolds' invention would provide a vertical dimension that is equivalent to the height of Reynolds' carbonator. Accordingly, Reynolds does not disclose a vertical dimension of a cross section of the housing, wherein the vertical dimension is the shorter dimension of the cross-section, and clearly cannot anticipate an oblong housing laying in a longitudinal direction.

The Examiner has further stated that Reynolds' carbonator may be angled to be placed in a cold plate. Applicant respectfully asserts that if Reynolds' carbonator is angled, Reynolds then has a circular cross-section, and the height and width of a circle are equivalent, thereby rendering claim 2 patentable over Reynolds, as Reynolds clearly does not provide a carbonator including a cross-section, wherein the vertical dimension is one of the shorter dimensions of the housing. Applicant still further respectfully asserts that it is improper for the Examiner to rotate Reynolds' carbonator to reduce the height of the carbonator. Reynolds discloses an upright carbonator because he desires to flow thin films of water down his cylindrical wall. Moreover, Reynolds' carbonator is disposed adjacent to tubing from a refrigeration circuit that drops in temperature to cool the carbonator. As such, there is no urgency to reduce the height of Reynolds' carbonator, because the Reynolds carbonator is not disposed within a cold plate. Accordingly, the rotation of Reynolds' carbonator will compromise the integrity of the invention, as there will not be an even distribution of the water to all of the cylindrical side wall, because Reynolds' invention was designed to flow downward in a thin film, thereby exposing the film to the gas disposed within the chamber.

Based on the foregoing arguments, Applicant respectfully asserts that claim 2 is patentable over Reynolds, and respectfully requests that the rejection of claim 2 under 35 U.S.C. §102 (b) be withdrawn.

Claim 3 and 4 stand rejected under 35 U.S.C. §102(b) by Reynolds. The Examiner asserts that Reynolds discloses a cross-section that has a vertical dimension that is one of the shorter dimensions of the cross section, and is oblong or oval shaped. Applicant respectfully disagrees with Examiner's assertion. As previously presented in the arguments of claim 2, Reynolds does not disclose a carbonator housing including a cross-section having a vertical dimension as one of the shorter dimensions of the housing. Reynolds therefore cannot anticipate Applicant's invention which includes a cross-section having a vertical dimension that is one of the shorter dimensions of the housing. Reynolds clearly discloses an "upright" carbonator that has a dominant vertical dimension. Further, if the Examiner did angle Reynolds' carbonator housing, the cross-section would then be a circle. One of ordinary skill in the art will readily recognize that a cross-section of a cylinder produces a circle that includes a horizontal dimension and a vertical dimension that are equivalent. As such, Reynolds clearly cannot anticipate Applicant's claim to a cross section of a carbonator, wherein a vertical dimension is one of the shorter dimensions of the cross-section. Nor can Reynolds anticipate Applicant's claims to a carbonator including a housing having a cross-section in the shape of an oblong, an oval, or any resemblance thereof. Accordingly, Applicant respectfully asserts that claims 3-4 are patentable over Reynolds and respectfully requests that the rejections of claims 3-4 under 35 U.S.C. §102(b) be withdrawn.

Claim 9 stands rejected under 35 U.S.C. §102(b) by Reynolds. In rejecting claim 9, the Examiner asserts that Reynolds discloses an increased exterior surface area. Applicant respectfully contends that Reynolds discloses a cylindrical housing that stands on end, and therefore, is limited to a predetermined amount of surface area based upon a radius dimension of the circle. Reynolds must, therefore, increase his diameter or height to increase his exterior

surface area, the second of which is blatantly contrary to the objectives of Applicant's invention. Applicant's invention is drawn to a reduced height carbonator utilizing an oval or oblong cross section to further increase exterior surface area. Applicant respectfully submits that Applicant's width dimension of a cross section may be infinitely expanded to capture increased exterior surface area. Applicant contends that Reynolds is locked into a predetermined amount of surface area, as Reynolds utilizes a cylindrical housing. Reynolds does not disclose a wider cross section housing, and therefore, cannot anticipate Applicant's claim 9. Accordingly, Applicant respectfully asserts that Applicant's claim 9 is patentable over Reynolds, and respectfully requests that the rejection under 35 U.S.C. §102(b), be withdrawn.

Claim 33-35 stand rejected under 35 U.S.C. §102(b) by Reynolds. The Examiner has asserted that Reynolds anticipates Applicant's claim 33 on the basis that Reynolds' carbonator may be tilted to produce a "cross-sectional plane on an angle of, for example five degrees from horizontal would provide a cross-sectional slice that is oblong or oval in shape." As previously argued, the Examiner does not have the liberty to take sectional planes at random angles to produce a desired cross-section. Applicant respectfully asserts that a "cross-section" must be taken normal to an axis, and therefore, Reynolds' cross-section is in the shape of a circle or, if sliced vertically, a shape that includes a dominant vertical dimension. Applicant's claim 33 is drawn to a carbonator housing including a cross section having a width dimension that is greater than a height dimension of the cross section. As previously argued, Reynolds does not disclose a carbonator housing having a cross section including a width dimension that is greater than the height dimension, and therefore, cannot anticipate Applicant's claim 33. Accordingly, Applicant respectfully asserts that claim 33 is patentable over Reynolds, and respectfully requests that the rejection of claim 33 under 35 U.S.C. §102(b) be withdrawn.

Claims 34 and 35 stand rejected under 35 U.S.C. §102(b) by Reynolds. Applicant respectfully asserts that Reynolds clearly does not disclose a cross section having a greater width than height, and a cross section in the shape of an oblong or an oval, and therefore, cannot anticipate claims 34-35 that refine the shape of a cross-section including a greater width than height. As such, Applicant deems that claims 34 and 35 are patentable over Reynolds, and respectfully requests that the rejections of claims 34-35 under 35 U.S.C. §102(b) be withdrawn.

Claim 40 stands rejected under 35 U.S.C. §102(b) by Reynolds. Applicant respectfully asserts that the arguments for claim 9 are pertinent to claim 40. Reynolds clearly does not provide a carbonator housing, wherein a width of a cross-section is greater than the height of the cross-section, and further wherein the “wider cross-section provides an increased exterior surface area.” Applicant respectfully contends that Reynolds discloses a cylindrical housing that stands on end, and therefore, is limited to a predetermined amount of surface area based upon a radius dimension of the circle. Reynolds must, therefore, increase his diameter or height to increase his exterior surface area, the second of which is blatantly contrary to the objectives of Applicant’s invention. Applicant’s invention is drawn to a reduced height carbonator that further provides increased exterior surface area. As such, Applicant respectfully submits that claim 40 is patentable over Reynolds and respectfully requests that the rejection of claim 40 under 35 U.S.C. §102(b) be withdrawn.

Claim 5 stands rejected under 35 U.S.C. §103(a) by Reynolds. The Examiner deems that it would have been obvious to one of ordinary skill in the art to modify Reynolds’ carbonator to achieve a semi-oblong shaped housing, without affecting the operation of the device. Applicant has amended claim 5 to eliminate the recitation of a “semi-oblong” shape, and therefore, the rejection of claim 5 under 35 U.S.C. §103(a) is now moot. Moreover, Applicant has amended

claim 5 to recite, “wherein the cross section is wider than tall.” Applicant respectfully submits that the arguments for claim 1 and 2 are pertinent to claim 5, and therefore claim 5, as amended, is patentable over Reynolds.

Claim 36 stands rejected under 35 U.S.C. §103(a) by Reynolds. The Examiner deems that it would have been obvious to one of ordinary skill in the art to modify Reynolds’ carbonator to achieve a semi-oblong shaped housing, without affecting the operation of the device. Applicant has canceled claim 36 to eliminate the recitation of a “semi-oblong” shape, and therefore, the rejection of claim 36 under 35 U.S.C. §103(a) is now moot.

Claims 6-8 and 37-39 stand rejected under 35 U.S.C. 103(a) as being “unpatentable over Reynolds, as applied to claims 1 and 33 above, and further in view of the admitted prior art, such as embodied by Schroeder ‘981.” Applicant respectfully submits that while Schroeder ‘981 does disclose placing a carbonator within a cold plate, Schroeder ‘981 does not disclose a carbonator including a “reduced vertical profile.” Schroeder ‘981 discloses, “And, because of the relatively high surface area to volume ratio (thus efficient heat transfer) that results from using segments, very efficient carbonation is achieved,” (Column 3, lines 46-49). Consequently, although the addition of individual segments provides an increase in the amount of surface area, as opposed to having one large segment, the “toroids” disclosed in Schroeder ‘981, are not in any way reduced in height.

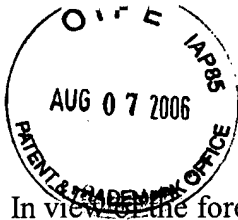
Applicant further submits that the combination of Reynolds in view of Schroeder does not substantially disclose Applicant’s invention, as Reynolds’ carbonator is designed to be cooled by a refrigerant line disposed around a tube 101, wherein the tube 101 is chilled. When a refrigeration system is operating, the tube 101 is chilled, thereby chilling the attached carbonator. As such, Reynolds’ carbonator is disposed parallel to the tube 101, in this case, upright.

Reynolds' carbonator inlets fluid through a port disposed at an uppermost point of the carbonator housing, and the inletting fluid is redirected by a centrally disposed baffle 340, thereby directing the fluid back to an outwardly dished top wall 303. Once the redirected fluid reaches the top wall 303, the fluid flows downward along the top wall 303 and a cylindrical side wall 302 to the carbonated water pool disposed at a lowest point of the carbonator housing. Applicant respectfully submits that Reynolds' carbonator may not be tilted without rendering the carbonator useless. The inletting fluids must be carbonated by exposure to high pressure gas, and the tilting of Reynolds' carbonator housing does not allow the fluids to move in a thin film down the cylindrical side wall 302. Accordingly, the tilting of Reynolds' carbonator housing clearly eliminates at least half of the thin film exposure required by Reynolds' carbonator design, thereby severely altering the efficiency of Reynolds' carbonator.

Alternatively, if Reynolds' carbonator is disposed within a cold plate in an upright position, the required cold plate thickness will be of an abnormally tall disposition, as the carbonator must be completely disposed within the cold plate. An excessively tall cold plate will be undesirable in a product dispenser, as the increased mass will severely impact the manufacturing costs, the shipping costs, and the operating expenses. A cold plate of an increased thickness may further impact the overall height of the product dispenser, as increased quantities of ice may be required to maintain a prescribed temperature of a larger cold plate. Based on the foregoing arguments, Applicant respectfully asserts that claims 6-8 and 37-39 are patentable over Reynolds in view of Schroeder, and respectfully requests that the rejections of claims 6-8 and 37-39 under 35 U.S.C. §103(a) be withdrawn.

The prior art made of record has been reviewed by Applicant and is deemed not to anticipate nor render obvious the claimed invention.





In view of the foregoing, Applicant respectfully requests reconsideration of the rejected claims, and solicits early allowance of the subject application.

Respectfully submitted,

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DATE: 7 August 2006

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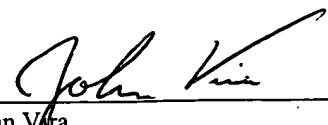
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